REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 2-45 stand rejected under 35 U.S.C. 112, first paragraph, as allegedly not being supported. The rejection asserts that the claims are not fully supported by the originally filed specification since the specification is alleged to be limited to crystallization of silicon with a catalyst material. Claims 2, 3, 5-9, 11-15, 17-24, 26-31, 33-36, 38-41, and 43-45 stand rejected based on this allegation. The rejection also asserts that claims 2-19 are not supported by the specification, again alleging that the specification is limited to crystallization of amorphous silicon. This is respectfully traversed, and it is respectfully suggested that the present invention is not limited to crystallization of silicon with a catalyst.

The present specification discloses an upper auxiliary linear infrared light and an upper main linear infrared light located over the semiconductor film. A lower auxiliary linear infrared light and a lower main linear infrared light are located at an underside of the semiconductor film such that a

semiconductor film. That is, the claimed features are not limited to crystallization of the silicon film and the presence of a catalyst material. In addition, the specification clearly teaches irradiation with infrared light to activate dopant (see page 14, lines 4-6).

Claims 2-45 stand rejected under 35 U.S.C. 103 as allegedly being unpatentable over Nakajima in view of Hirano. This contention has been obviated by the amendment of the claims herein. The present invention specifically defines a method for fabricating a semiconductor device having the feature of irradiating the semiconductor film by scanning with at least two pair of linear infrared lights in predetermined direction. In order to emphasize the feature shown in Figs. 6A, 6B, and the second embodiment, applicant herewith amends independent claims 2, 8, 14, 20, and 41. Another of the features as defined in claims 20, 29, 36, and 41 defines that when the light is used to crystallize a semiconductor film, a scanning direction of light coincides with a direction of crystal growth. This is disclosed in the specification at page 6, line 23 through page 7, line 1.

The rejection over Nakajima in view of Hirano is also respectfully traversed. Nakajima teaches only linear laser crystallization and does not suggest any problem that is caused

combination of Nakajima in view of Hirano can be made only based on hindsight.

Moreover, both Nakajima and Hirano fail to teach that an upper auxiliary linear infrared light and an upper main infrared light are located over the semiconductor film, and that a lower auxiliary linear infrared light and a lower main linear infrared light are located underneath the film as shown in Figs. 6A, 6B, and the second embodiment. The references also do not teach that when the light is used to crystallize a semiconductor film, a scanning direction of the light coincides with a direction of crystal growth as described in the specification at page 6, line 23 through page 7, line 1. Nakajima's crystal growth proceeds in a radial direction as shown in Figs. 1A and 6B. Hence, Nakajima fails to teach or suggest this limitation.

In view of the above amendments and remarks, therefore, all of the claims should be in condition for allowance. A formal notice to that effect is respectfully solicited.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 6/7

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VERSION TO SHOW CHANGES

In the Claims:

Claims 2, 8, 14, 20, 22, 29, 36, and 41 have been amended as follows:

2. (Amended) A method for manufacturing a semiconductor device comprising steps of:

forming a semiconductor film over a substrate; and

irradiating said semiconductor film by scanning with at least [one] two pairs of linear infrared lights in a predetermined direction,

wherein one of said linear infrared lights is located over said substrate and the other one of said linear infrared lights is located at a backside of said substrate.

8. (Amended) A method for manufacturing semiconductor device comprising the steps of:

forming a semiconductor film over a substrate; and

irradiating said semiconductor film by scanning with at least [one] two pairs of linear infrared lights in a predetermined direction so as to form and move a temperature

wherein an upper auxiliary linear infrared light and [said] an upper main linear infrared light [is] are located over said semiconductor film and a lower auxiliary linear infrared light and [said] a lower main linear infrared light [is] are located at an underside of said semiconductor film.

14. (Amended) A method for manufacturing a semiconductor device comprising steps of:

forming a semiconductor film over a substrate; and

irradiating said semiconductor film with at least [one] two pairs of linear infrared lights while moving said substrate in a direction perpendicular to the linear infrared lights,

wherein a first auxiliary linear infrared light and one of [said] main linear infrared lights is located over said substrate and a second auxiliary linear infrared light and the other one of said main linear infrared lights is located at a backside of said substrate, and

wherein said semiconductor film is irradiated with said first and second auxiliary lights prior to said main linear infrared lights.

25. (Amended) A method for manufacturing semiconductor

forming an amorphous semiconductor film over a substrate; and

crystallizing the semiconductor film by scanning with at least [one] two pairs of upper and lower linear infrared lights in a predetermined direction,

wherein said upper linear infrared lights [is] are located over said substrate and said lower linear infrared lights [is] are located at a backside of said substrate, and

wherein said predetermined direction is coincident with a direction of crystal growth in the semiconductor film.

22. (Amended) A method according to claim 20, wherein [the predetermined direction is corresponding to a direction of crystal growth to be proceeded] at least one of pairs of said linear infrared lights is auxiliary lights.

29. (Amended) A method for manufacturing semiconductor device comprising the steps of:

forming an amorphous semiconductor film over a substrate; and

crystallizing the semiconductor film by scanning the semiconductor film with at least one pair of upper and lower

wherein said upper linear infrared light is located over said semiconductor film and said lower linear infrared light is located at an underside of said semiconductor film, and

wherein a scanning direction is coincident with a direction of crystal growth to be proceeded in the semiconductor film.

36. (Amended) A method for manufacturing a semiconductor device comprising steps of:

forming an amorphous semiconductor film over a substrate; and

crystallizing said semiconductor film by irradiating said semiconductor film with at least one pair of linear infrared lights while moving said substrate in a perpendicular to the linear infrared lights,

wherein one of said linear infrared lights is located over said substrate and the other one of said linear infrared lights is located at a backside of said substrate, and

wherein an irradiating direction is coincident with a direction of crystal growth to be proceeded in the semiconductor film.

41. (Amended) A method for manufacturing a semiconductor

forming an amorphous semiconductor film over a substrate; and

crystallizing said semiconductor film by scanning with a plurality pairs of linear infrared lights in a direction perpendicular to a longitudinal direction of the linear infrared lights, each of said pairs [of pairs] of linear infrared lights consisting of an upper linear infrared light and a lower linear infrared light,

wherein each upper linear infrared light is located over said substrate and each lower linear infrared light is located at a backside of said substrate, and

wherein a scanning direction is coincident with a direction of crystal growth to be proceeded in the semiconductor film.

New claims 46-48 have been added.